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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,970	06/27/2003	Giridhari L. Agrawal	4825-09	7432

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Wm. Tucker Griffith  
McCormick, Paulding & Huber LLP  
CityPlace II  
185 Asylum Street  
Hartford, CT 06103

EXAMINER

KRAUSE, JUSTIN MITCHELL

ART UNIT	PAPER NUMBER
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3682

DATE MAILED: 11/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/608,970

Applicant(s)

AGRAWAL, GIRIDHARI L.

Examiner

Justin Krause

Art Unit

3682

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6,8,9,11-15 and 17-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8,9,11-15 and 17-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 29, 2006 has been entered.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the lines of weakness as slots, perforations, etched lines, and grooves must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings

for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 8, 11, 12 and 25-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Saville et al (US Patent 6,224,263).

Saville discloses a thrust foil bearing having a thrust bearing plate (14) with a plurality of foils (16) disposed on the surface of the thrust bearing plate, a spring plate (22) operatively engaging the thrust bearing plate, a plurality of springs (23), the thrust bearing plate includes a plurality of a plurality of decoupled bearing segments defined in part by a plurality of generally radially extending lines of weakness (18) dispersed about the thrust bearing plate, the decoupled bearing segments being circumferentially arranged about the thrust bearing plate.

Saville further discloses that the lines of weakness may be other configurations as disclosed in US Patent 4,624,583, incorporated by reference into the '263 Patent, (See col 3, line 39), including but not limited to slits (fig 6), slots (fig 4), perforations (fig 10), grooves (Fig 8). The lines of weakness being etched lines is a product by process limitation (see MPEP 2113), Saville discloses a variety of forms that are capable of being formed by etching including the slits, slots, perforations and grooves previously mentioned.

Each bearing segment includes at least one foil.

The thrust bearing plate and spring plates are annular plates each having an inner and outer diameter.

The lines of weakness extend from the inner diameter (see fig 8).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saville et al (US Patent 6,224,263).

Saville discloses all of the claimed subject matter as described above, but does not explicitly disclose the lines of weakness extending from the outer diameter, or both

the inner and outer diameters, wherein the lines of weakness are circumaxially dispersed about the thrust bearing plate in a sequenced manner.

Saville does state that the slots "need not be of the same configuration, and can be varied from one to another." (Col 3, lines 39-41)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the lines of weakness extend from the outside diameter, or from both the outside and inside diameter, within the scope of the disclosed invention and still provide the same function of the slots as disclosed, allowing unrestricted airflow through the bearing plate.

7. Claims 9 and 17-24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saville et al (US Patent 6,244,263) in view of Heshmat (US Patent 5,833,369).

Saville discloses all of the claimed subject matter as described above but does not disclose the spring plate including a plurality of decoupled bearing segments defined in part by generally radially extending lines of weakness, the decoupled bearing segments being circumferentially arranged about each of said thrust bearing plate and said spring plate.

Heshmat teaches a spring plate with a plurality of decoupled bearing segments (fig 7) defined in part by lines of weakness (92) circumaxially dispersed about the spring plate for the purpose of improving compliance and to enable the bearing to accommodate excursions of the thrust runner (Col 7, lines 1-4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the spring plate of Heshmat into the device of Saville, the motivation would have been to improve compliance and to enable the bearing to accommodate excursions of the thrust runner.

The limitations embodying the lines of weakness being slots, slits, perforations, etched lines or grooves are considered obvious variations of each other. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the lines of weakness of any form as it has been shown in Saville, absent any particular benefit disclosed as to why one structure is beneficial relative to the others, it would seem as if the device would perform equally well with any one of the claimed structures. The lines of weakness being etched lines is a product by process limitation (see MPEP 2113), a variety of forms that are capable of being formed by etching including the slits, slots, perforations and grooves previously mentioned.

Heshmat discloses the lines of weakness to extend from both the inner and outer diameter of the spring plate.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Krause whose telephone number is 571-272-3012. The examiner can normally be reached on Monday - Friday, 7:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMK  
1/11/06



RICHARD RIDLEY  
SUPERVISORY PATENT EXAMINER